Disease Survey

A. Sampling to detect disease

Countries are often asked to certify the freedom of animal populations from certain diseases. Mexico is seeking U.S. Department of Agriculture recognition for the State of Sonora to be free of Classical Swine Fever (CSF). This requires,among other things, testing of at least a sample of the animals in that State.

Countries which have not had evidence of a particular disease, and therefore, believe that they are free of the disease, must use a sampling scheme that will yield sufficient confidence to show that the disease is not detected at a given prevalence.

To make the survey both practical and cost effective, we recommend that a risk-based survey approach be used. That is, the sampling to be conducted should be biased towards areas where the disease has the highest likelihood of occurrence. The advantage of this approach is that one is not forced to conduct an expensive survey throughout the country to show the lack of presence of the disease. If negative in these high risk areas, then by inference, areas of lower risk should also yield negative results.

Size and Population to be sampled

The population of pigs to be sampled should be those found in backyard herds.

The size of the sample to be tested to determine the presence of CSF will depend on the size of the swine population, the confidence desired and on the estimated prevalence of disease. Since Sonora is seeking to be recognized as a region of very low prevalance (or free), the prevalence of CSF, should be close be zero. To prove that Sonora is "free" of CSF would require sampling all pigs. This, of course, is neither reasonable nor practical, therefore the recommendation is to sample a population of backyard herds in high risk areas to detect disease at a herd prevalence of 1% using a confidence level of 95%.

Since the objective of the survey is to find the disease, the sampling should be directed at those municipalities bordering high risk areas or areas of unknown status. Three hundred herds would need to be selected to have a 95% certainty of detecting at least one positive flock given a prevalence of 1%.

B. Sampling commercial herds

C. Routine surveillance for CSF

Slaughter surveillance

Need numbers to estimate:

Within Herd Prevalance
Between Herd Prevalance.

Survey --
- use of GIS
  - what is the distribution by size
    - commercial
    - back-yard
- sampling scheme
  - at what confidence level
  - at what prevalence

On-going surveillance:

- submission of samples of suspect cases
  - tonsils/ serum
- routine surveillance
  - cull sows and boars at municipal plants
  - market hogs at integrated operations (TIF) plants

Surveillance in adjoining states
- Sinaloa/Chihuahua

Integrators
- In-house labs
- Porblems --> EADC??